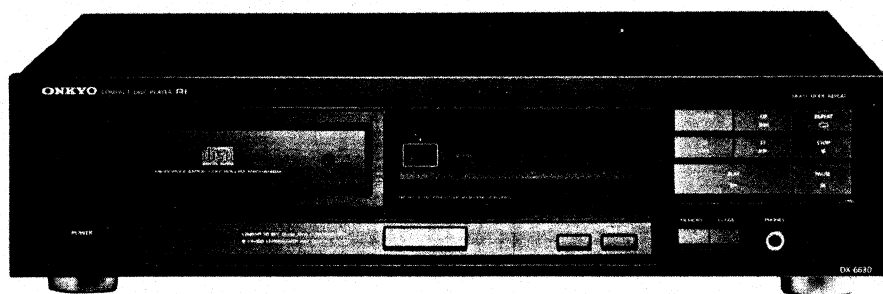


DX-6630

SERIAL NO. 3318


ONKYO® SERVICE MANUAL

COMPACT DISC PLAYER MODEL DX-6630



Black and Silver models

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

Signal readout system:	Optical non-contact
Reading rotation:	About 500~200 r.p.m. (constant linear velocity)
Linear velocity:	1.2~1.4m/s
Error correction system:	Cross interleave readsolomon code
Decoded bits:	16 bits linear
Sampling frequency:	352.8kHz (8 times oversampling)
Number of channels:	2 (stereo)
Frequency response:	5Hz~20kHz
Total harmonic distortion:	0.004% (at 1kHz)
Dynamic range:	96dB
Signal to noise ratio:	100dB
Channel separation:	90dB (at 1kHz)
Wow and Flutter:	Below threshold of measurability
Power consumption:	16 watts
Output level:	2 volts r.m.s.
Dimensions (W x H x D):	435x119x312mm 17-1/8"x4-11/16"x12-1/4"
Weight:	4.7kg, 10.4lbs.

Specifications are subject to change without notice.

ONKYO

AUDIO COMPONENTS

TABLE OF CONTENTS

Specifications	1
Portection on eyes from laser beam during servicing.	2
Laser warning labels.	2
Caution on replacement of pickup	4
Exploded view-parts list	4
Exploded view	5
Mechanism-exploded view.	6
Parts list	7
Disassembling procedures	8
Adjustment procedures.	12
Trouble shooting guide.	15
IC block diagram and description	17
Microcomputer descriptions	23
Schematic diagram.	25
Waveform of each section	29
Pc board view & Parts list	31
Block diagram.	35
Packing view.	36

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

LASER WARNING LABEL

The label shown below are affixed.

1. Class 1 label (Except 120V model)

This label is located on the back panel.

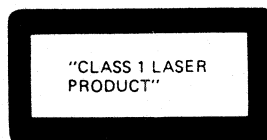


Fig. 3

Laser Diode Properties

- Material: GaAS/GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*

*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

2. Warning lable

This label is located on the arm of mechanism.

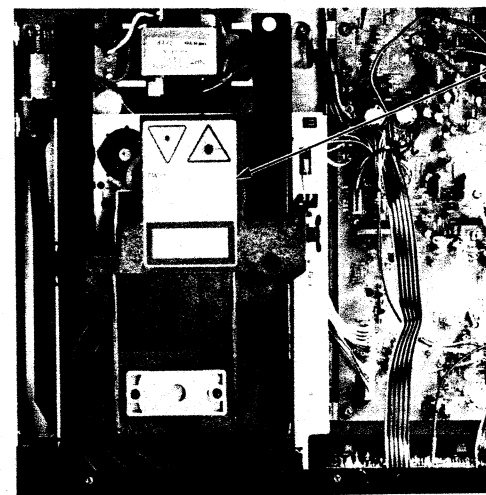
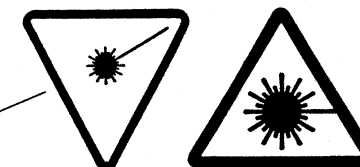


Photo 1



DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM

CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED.

ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLANCHEMENT DE SECURITE ANNULE. SN29360911

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

Fig. 4

ADVARSEL

"CLASS 1 LASER PRODUCT"

Denne mærkning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilsigelig kraftig stråling.

APPARATET BØR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselmærkning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.

VAROITUS! Laite sisältää laserdiodin, joka lähettää (näkyvää) silmille vaarallista lasersäteilyä.

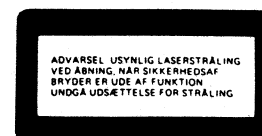


Fig. 5

CAUTION ON REPLACEMENT OF PICKUP

The laser diode in the optical pickup block is so sensitive to static electricity, surge current and etc. that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair, carefully take the following precautions. (The following precautions are included in the service parts).

PRECAUTIONS

1. Ground for the work-desk.

Place a conductive sheet such as a sheet of copper (with impedance lower than $10^6 \Omega$) on the work-desk and place the set on the conductive sheet so that the chassis.

2. Grounding for the test equipment and tools.

Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3. Grounding for the human body.

Be sure to put on a wrist-strap for grounding whose other end is grounded.

Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

4. Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5. Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

Care should be taken with the optical pickup.

The optical pickup is sensitive to static electricity, surge currents, and other high electrical noise, and because there is the possibility of damage to performance, in the handling of the pickup, the utmost care must be taken, particularly with regard to static electricity.

1. When checking the laser terminal, avoid making connections using the probes of a tester or oscilloscope, or an ordinary power supply.

2. When replacing the optical pickup, first short the LD terminals and remove the connector. Also, when attaching the new optical pickup, after attaching the connector, unsolder the LD terminals.

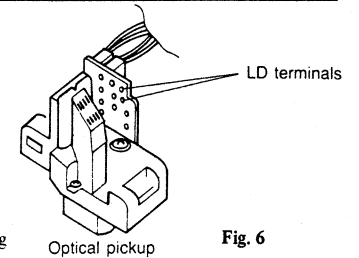


Fig. 6

EXPLODED VIEW-PARTS LIST

NOTE: : Only Black Models
<S>: Only Silver Models

REF.NO.	PART NO.	DESCRIPTION	
1	27100190	Chassis	
2	27121238-1	Back panel	
4	27300750	△ Bushing, cord (Strainrelief)	
5	27190266	KGLS-12R, Holder	
6	28140946	Cushion	
7	27273112	Joint, power	
9	27270214A	Spacer (Main circuit pc board)	
11	27190706B	Holder, mechanism	
12	28140928	t4×25×25, Cushion	
13	27141340	Bracket L	
15	830440109	4TTC+10C(BC), Tapping screw	
16	834430088	3TTS+8B(BC), Tapping screw	
17	833430080	3TTP+8P(BC), Tapping screw	
18	831130088	3TTW+8B, Tapping screw	
19	834430108	3TTS+10B(BC), Tapping screw	
20	833426060	2.6TTP-6P(BC), Tapping screw	
26	27110477	Front bracket ass'y 	
	27110477-1	Front bracket ass'y <S>	
31	28184429	Top cover 	
	28184430	Top cover <S>	
33	834430088	3TTS+8B(BC), Tapping screw	
51	1H079121	Front panel ass'y 	
	1H080121	Front panel ass'y <S>	
58	27211085-2	Tray panel 	
	27211085-1	Tray panel <S>	
71	28191512	Clear plate	
72	833430080	3TTP+8P(BC), Tapping screw	
74	27270255	Spacer	
76	27175153	Leg	
77	834430088	3TTS+8B(BC), Tapping screw	
81	801364	Special screw	
82	801414	Special screw	
83	27175011C	Leg (Cushion)	
85	29360911	Label, caution, laser	
87	29360687	Label CLASS 1	
88	28173158A	Insulator plate	
P921	253148 or 253150	△ AS-CEE 250V 2.5A, Power supply cord	
T901	2300385B	△ NPT-1015G, Power transformer	
U1	1H073542-1A	NAAR-3542-1A, Main circuit pc board ass'y	
U2	1H073543-1	NADIS-3543-1, Display circuit pc board ass'y	
U3	1H073544-1	NAAF-3544-1, Headphone amplifier pc board ass'y	
U4	1H073545-1	NAPS-3545-1, Power supply pc board ass'y	
U5	1H073546-1	NAETC-3546-1, Syncro terminal pc board ass'y	
L901	230907	TR-16-8-16, Core (2nd side of power transformer)	

5



DX-6630

MECHANISM-EXPLODED VIEW

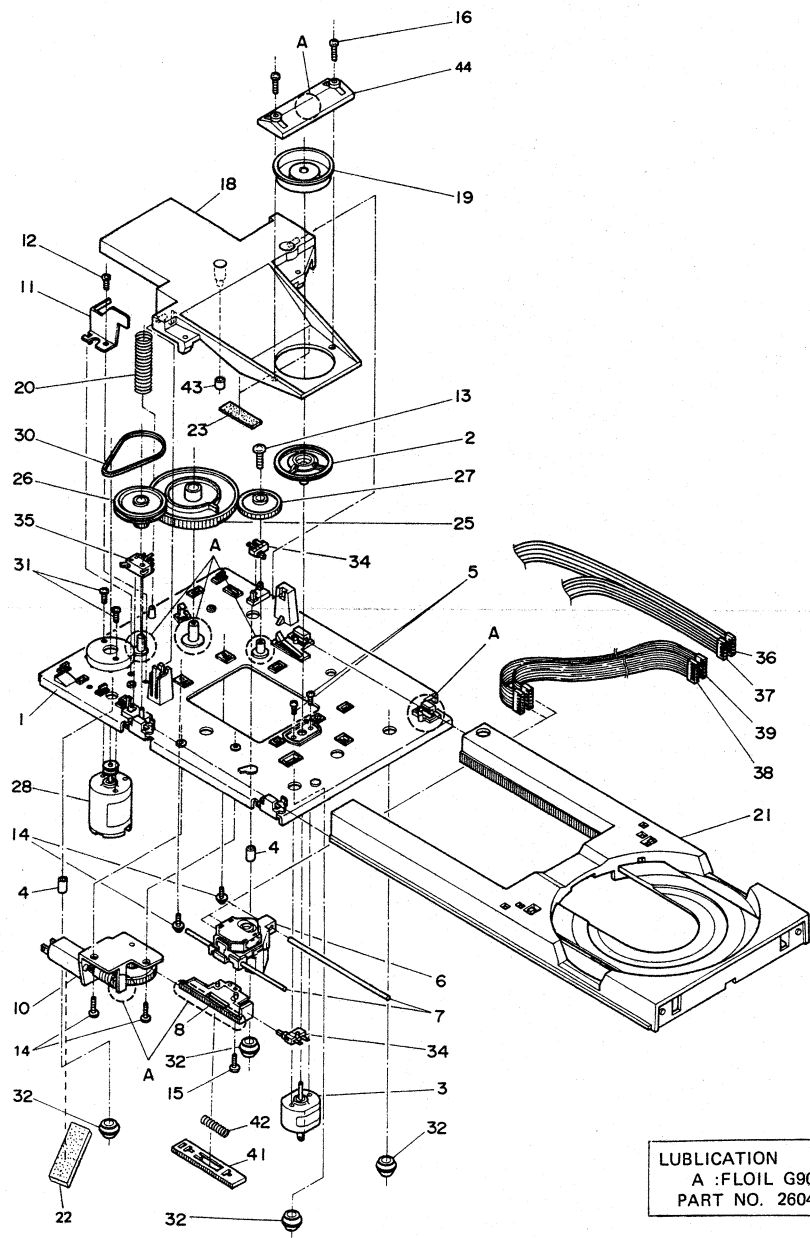


Fig. 8

PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	27100188A	Mechanism chassis	22	28140941	Cushion
2	27301201	Turntable	23	28140947	Cushion
3	24502243	Spindle motor	25	27300942C	Cam gear
4	28140948	Tube	26	27300943	Pulley gear
5	82142003	2P+3F(BC), Pan head screw	27	27300944A	Gear
6	24110001	KSS-152A, Optical pickup	28	1H025901	Tray motor ass'y
7	27260222	Shaft	30	27301079	Belt
8	27301191	Rack A	31	82143004	3P+4FN(BC), Pan head screw
10	1H073902	Slide motor ass'y	32	27301107	Cushion, rubber
11	27141230	Bracket, holder	34	25065321	NMS-1113, Microswitch (S002/S003)
12	834430068	3TTS+6B(BC), Tapping screw	35	25065322	NMS-1214, Microswitch (S001)
13	831126060	2.6TTW+6P, Tapping screw	36	2000733B	NSAS-6P689, Socket ass'y, motors
14	831430100	3TTW+10P(BC), Tapping screw	37	2000734B	NSAS-6P690, Socket ass'y, microswitches
15	833420068	2TTP+6P(BC), Tapping screw	38	2000952	NSAS-8P904, Socket ass'y, white
16	833426060	2.6TTP+6P(BC), Tapping screw	39	2000951	NSAS-8P903, Socket ass'y, red
18	27301190	Arm	41	27301192A	Rack B
19	27300848A	Cap CH	42	27180426	Spring
20	27180341A	Spring	43	27301189	Cap, arm
21	27301202A	Disc tray ass'y	44	27300849C	Holder, cap

DISASSEMBLING PROCEDURES

Method for removing the tray

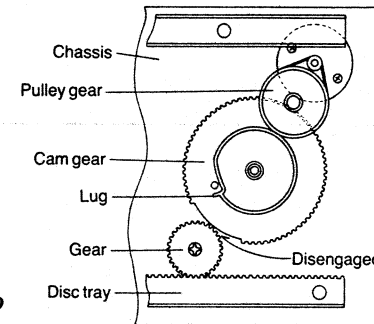


Fig. 9

1. Set the position so that the cam gear and gear are disengaged.
2. Pull the tray to the front.

Method for removing disc motor

1. Remove the tray.
2. Remove the holder, then remove the arm.
3. Remove the 3 screws that fasten the mechanism chassis to the main chassis.
4. Cut the turntable platter with a nipper.
5. Remove the soldering of the disc motor, and remove the 2 fastening screws.
6. When inserting the turntable platter onto the motor shaft, hold the platter at a right angle to the motor shaft and push it onto the shaft until it touches the bottom.

NOTE: Height of turntable platter.
See page 14.

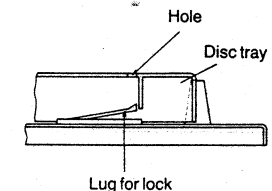


Fig. 10

3. Insert a small flat-bladed screw driver into the hole section of the right side of the back of the tray, and push the lug used for locking the tray to bring the tray to the front.

CAUTION: When inserting the tray, the cam gear and gear parts are not in the meshing position.

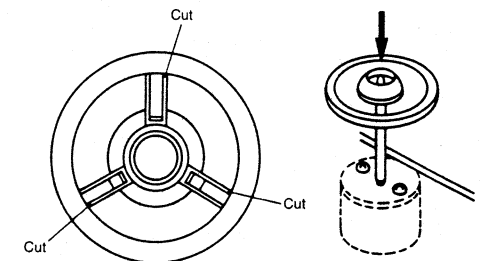


Fig. 11

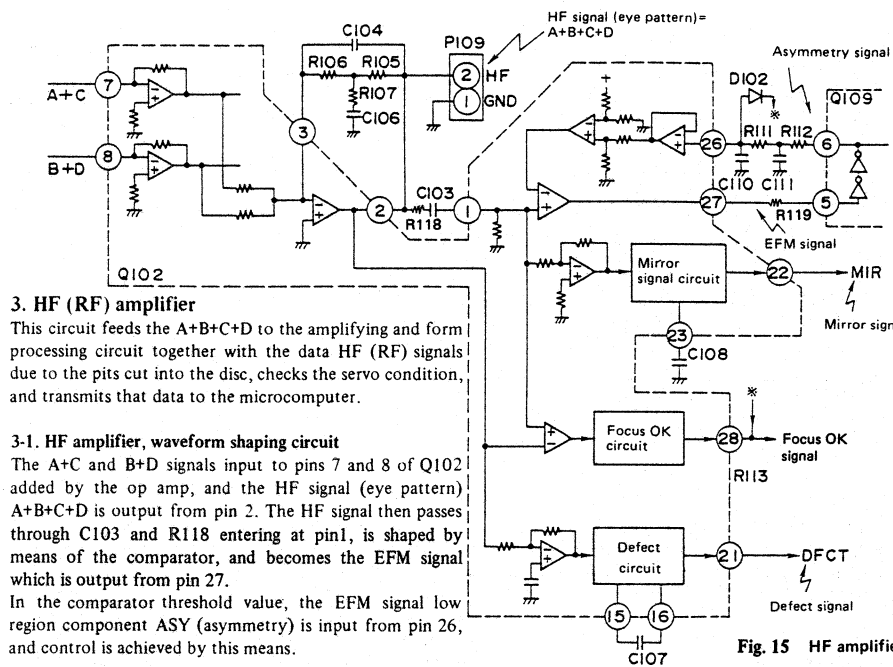


Fig. 15 HF amplifier circuit

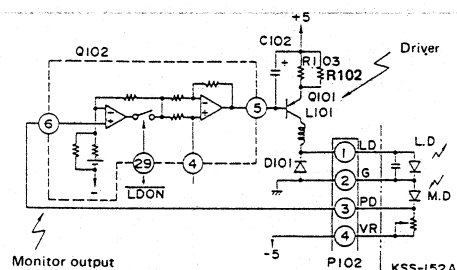


Fig. 16 APC circuit

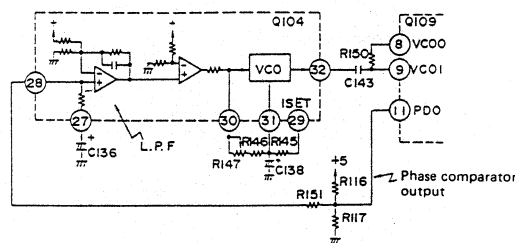


Fig. 17 PLL circuit

4. APC circuit

By means of feedback from the monitor, this circuit controls the light output due to a bad condition resulting from the temperature characteristic of the laser diode. For the pin 29 LDON (laser diode ON) signal, when the APC ON/OFF control signal is LOW, the laser is emitted.

5. CLV servo circuit

In the compact disc there is a CLV system (constant linear velocity), and at the replay position, because the disc rotary speed varies, the clock is taken out of the HF signal, and

the PLL circuit and its clock must be synchronized to control the spindle motor.

5-1. PLL circuit

As shown in Fig. 6, for the phase comparator, in Q109 the LPF and VCO are each built into Q104. The semi-fixed resistor R147 is the control for adjusting the 8.6436 MHz free run frequency (WFCK = 7.35 KHz).

5-2. Spindle motor control circuit

The output of the phase comparator (MDP) and frequency comparator (MDS) from pins 3 and 4 of Q109 is fed to pins 34 and 36 of Q104. Also, the spindle motor ON/OFF signal (MON) from pin 2 of Q109, and the phase selector signal (FSW) from pin 1, are output and fed to pin 36 of Q104. After these signals are processed in Q104, they are passed from pin 39 through the driver Q108, and are supplied to the spindle motor.

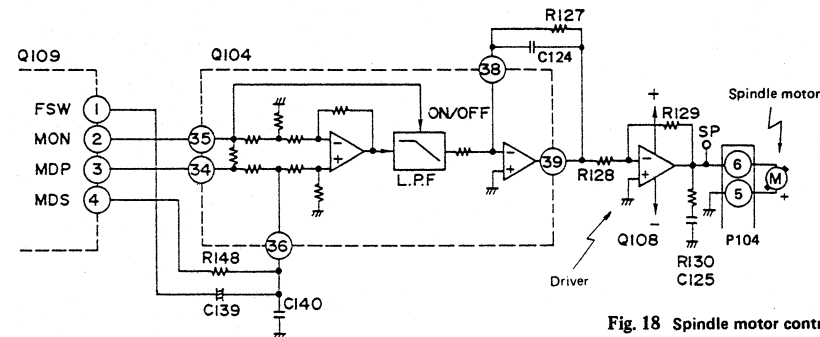


Fig. 18 Spindle motor control circuit

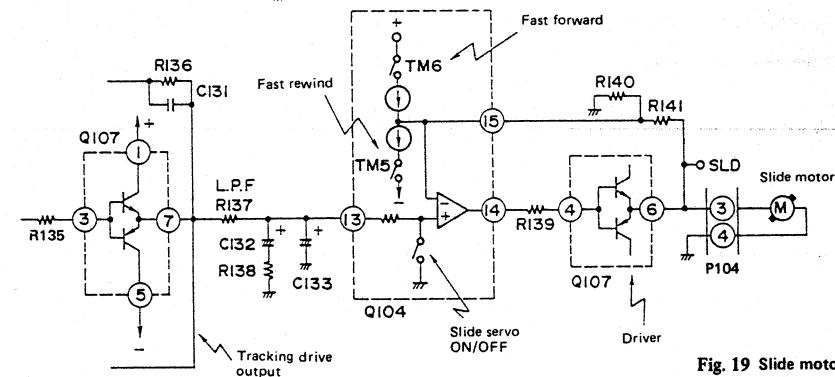
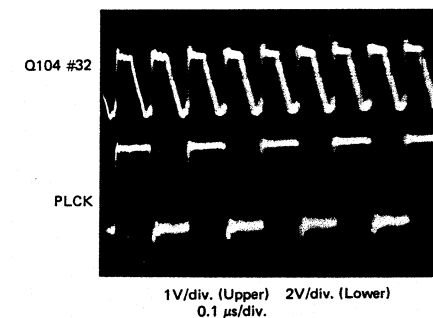


Fig. 19 Slide motor circuit

6. Slide motor circuit

This circuit controls the slide motor which is used for moving the optical pickup from inside the disc to the outside. In the normal playback time, the low region component of the tracking driver output is amplified and fed to the motor, but when the head is extended, switches TM5 and TM6 internal to Q104 control the ON/OFF.



ADJUSTMENT PROCEDURES

Instruments required

Dual trace oscilloscope, Frequency counter, AF oscillator, Test disc (SONY YEDS-18), AC voltmeter, Jitter meter, Sockets P106 & P107 (Part No. 25050089) P105 (Part No. 25050138)

1. VCO frequency adjustment

Connect the frequency counter to terminal P107.

Turn the power switch to ON. (No load the disc.)

Adjust R147 until the frequency counter reading becomes $4322 \pm 5\text{kHz}$.

After adjustment, disconnect the frequency counter.

2. Focus offset adjustment

Load the test disc YEDS-18 on the tray and play the track 2.

Connect the oscilloscope or jitter meter to terminal P106.

(Oscilloscope)

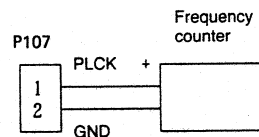
Adjust R110 until a clear trace of waveform pattern as shown photo 1 appear on the oscilloscope.

When the amount of jitter is broad, set R110 to mechanical center.

(Jitter meter)

Adjust R110 until the jitter meter reading becomes minimum. (Less than 10ns.)

After adjustment, disconnect the oscilloscope or jitter meter.



Use the high impedance probe more than $10\text{M}\Omega$.

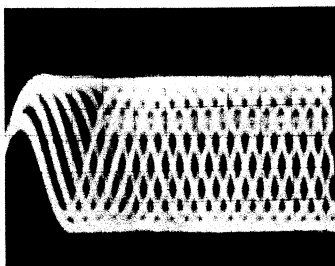
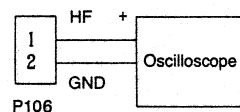
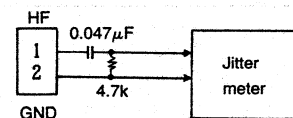


Photo 6



Oscilloscope range
Vertical : 0.2V/div.
Horizontal : $0.5\mu\text{s/div.}$



3. Tracking offset adjustment

Play the track 2 of test disc.

Turn R125 to minimum position. (Counter clockwise)

Connect the oscilloscope between pin 3 (TR) of P105 and pin 2 (GND) of P106.

Adjust R108 until the center of tracking error signal on the oscilloscope becomes GND level.

Turn R125 to the mechanical center.

After adjustment, disconnect the oscilloscope.

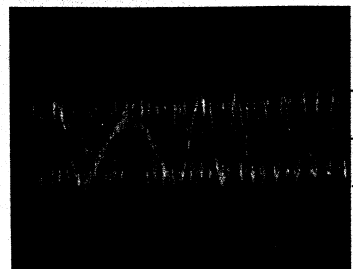
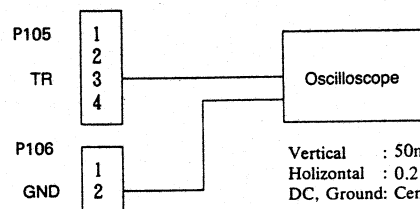


Photo 7



Vertical : 50mV/div.
Horizontal : $0.2\mu\text{s/div.}$
DC, Ground: Center

4. Focus gain adjustment

Set the output of AF oscillator to 800Hz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

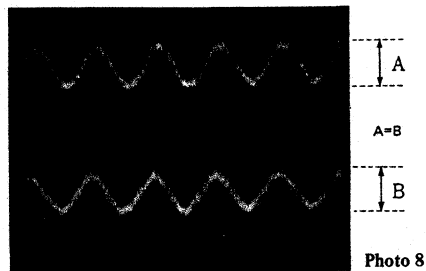


Photo 8

Adjust R122 until 800Hz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

5. Tracking gain adjustment

Set the output of AF oscillator to 1.2kHz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

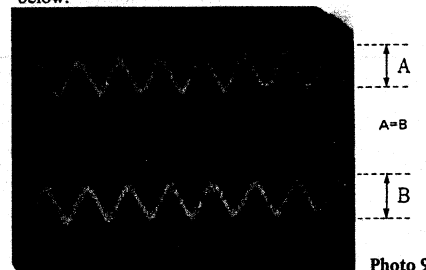


Photo 9

Adjust R125 until 1.2kHz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

6. MSB adjustment

Play the track 2 of test disc.
Read the output signal and regard it as 0 dB. Then, play the track 17.
Adjust R403 (R404) so that the output level becomes -60dB.
NOTE: () : R channel

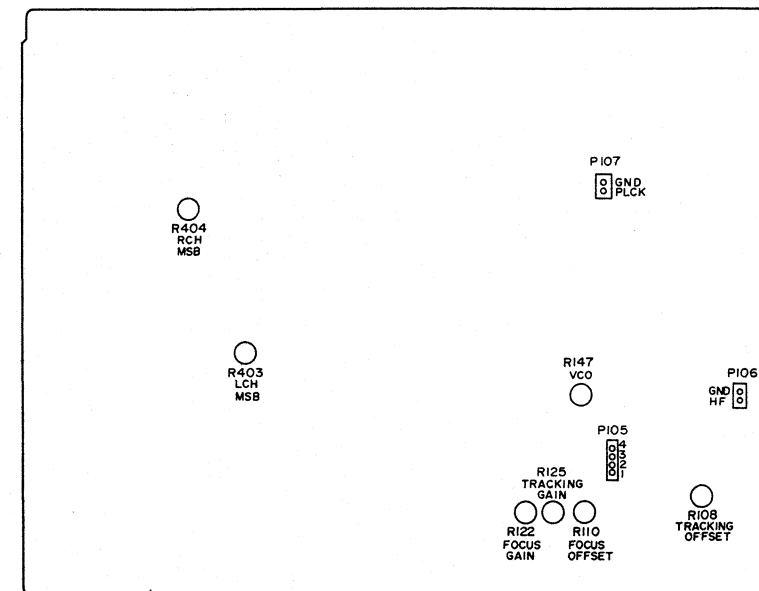
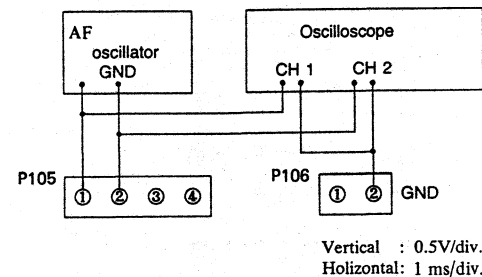


Fig. 20 ADJUSTMENT POINT

MECHANISM ADJUSTMENT

Height of turntable platter.

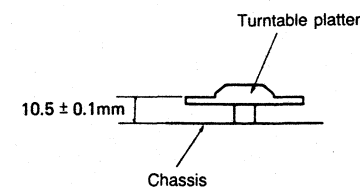


Fig. 21

Slide motor

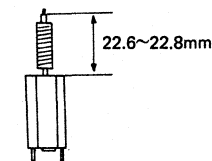


Fig. 22

Tray motor

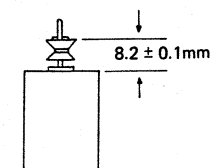
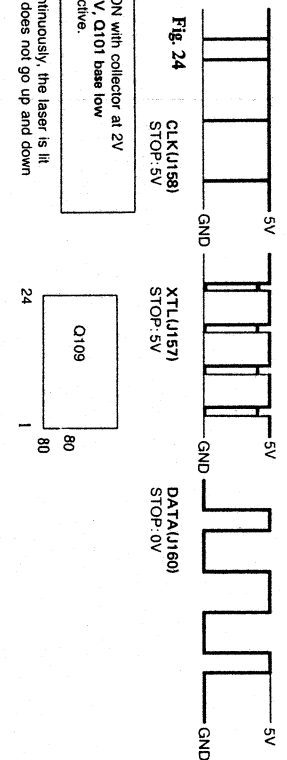
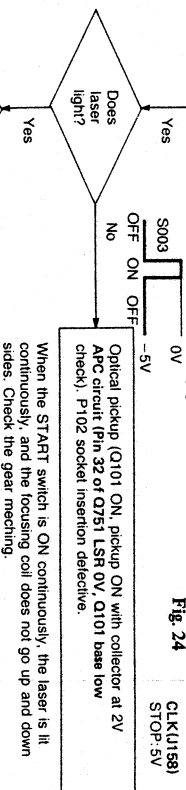
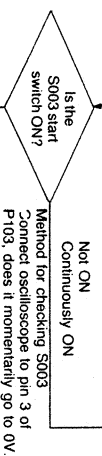
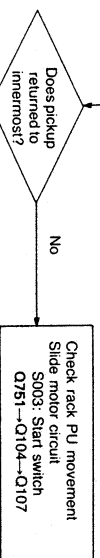
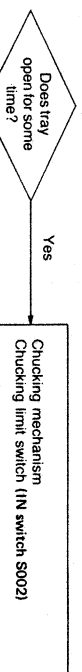


Fig. 23

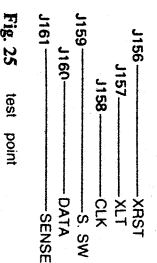
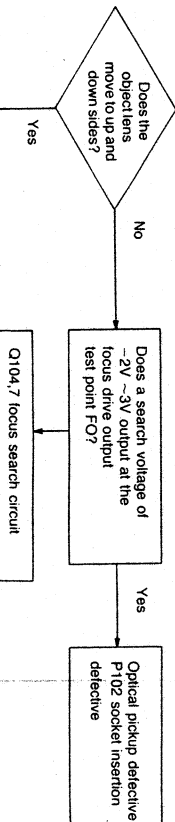
TROUBLESHOOTING GUIDE

Symptom: Defective reading (No RF signal emitted)

Load the disc on the tray, press OPEN/CLOSE key and close the tray. But, the total number of tunes are not indicated on the fluorescent indicator tube.



When the START switch is ON continuously, the laser is lit continuously, and the focusing coil does not go up and down sides. Check the gear meshing.



NOTE: There is the possibility that the pickup lens is so dirty that it is impossible to read. Clean with a lens cleaner.

- Use the high impedance probe. (10:1)
- Play the track 2 of test disc. (YEDS-18)

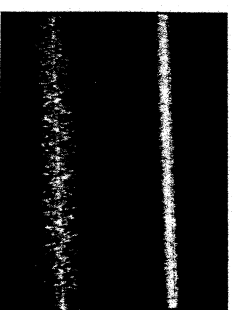
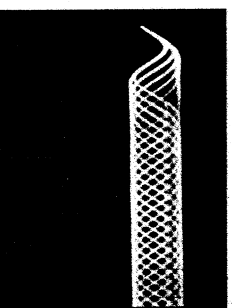
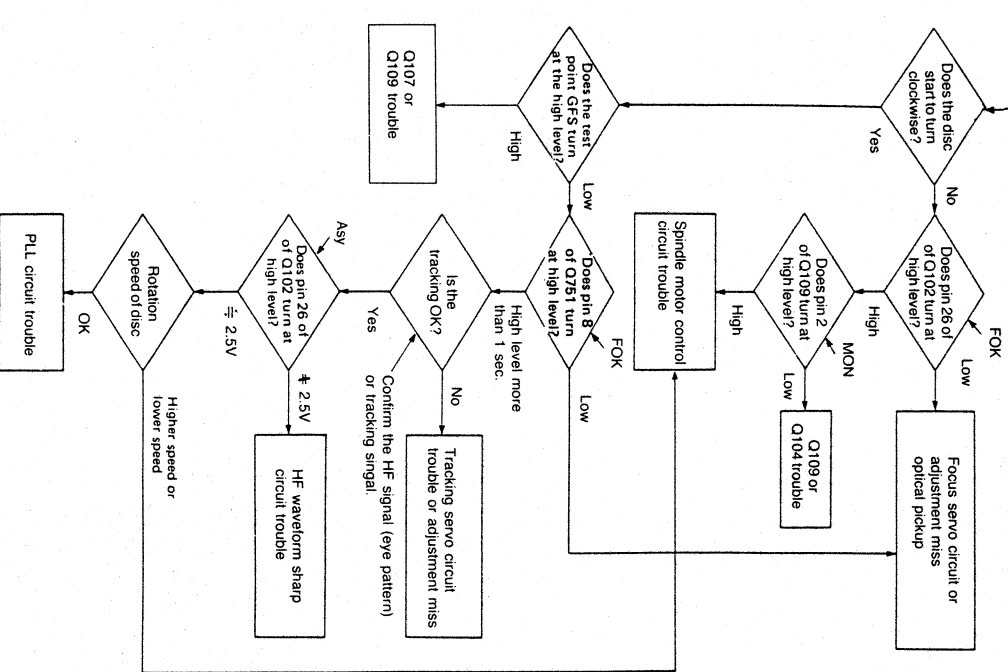


Photo 10

Photo 10

Photo 10



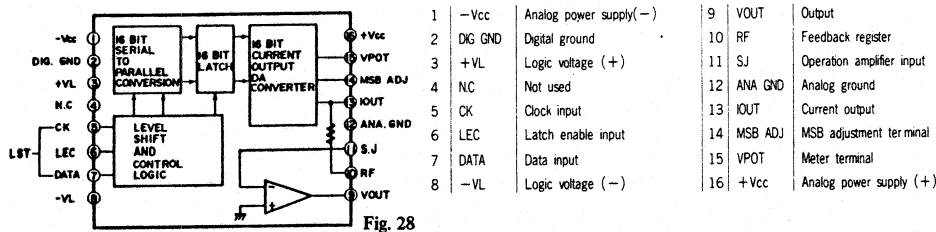
Q401, Q402
PCM-56P-L (D/A Converter)

Fig. 28

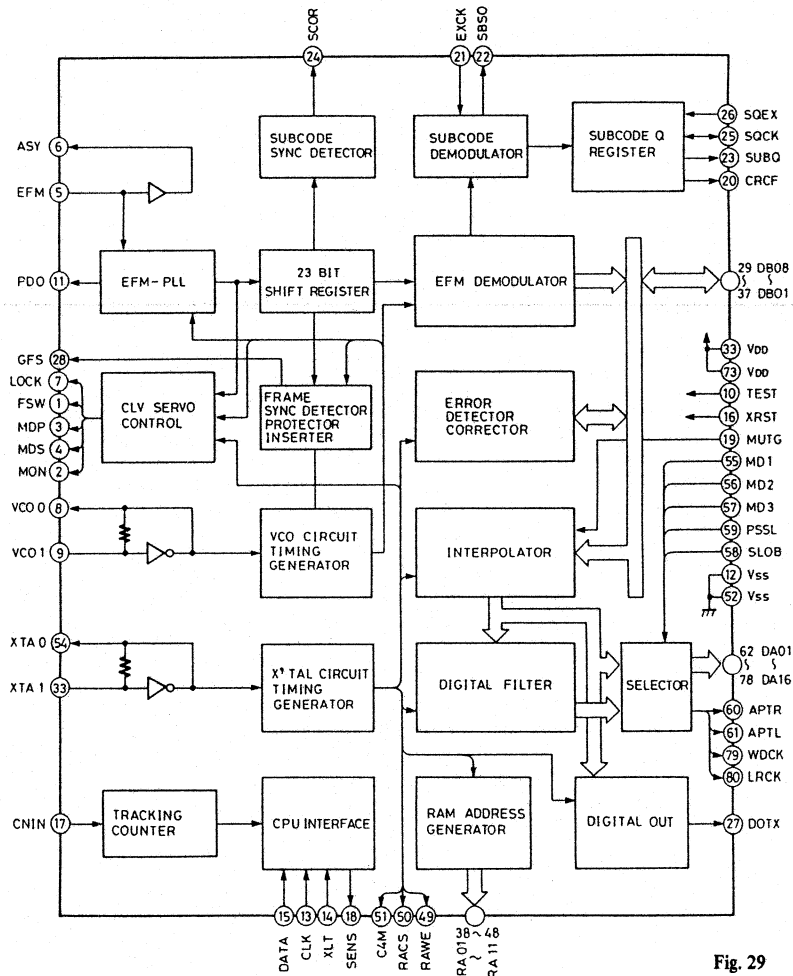
Q109
CXD1130Q (Digital Signal Processor)

Fig. 29

Q110 (Static RAM)

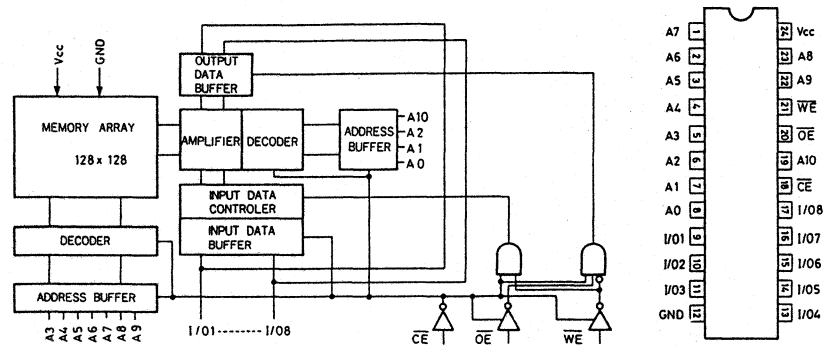


Fig. 30

Q113
SM5817AP (Digital filter)

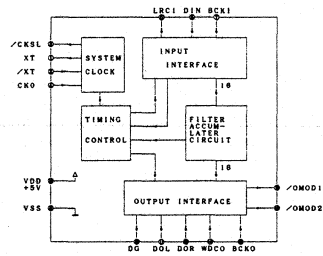


Fig. 31

Pin No.	Symbol	I/O	Description
1,2	XT./XT	I/O	Reference clock input/output terminals. fref=384fs
3	/CKSL	I	Reference clock frequency selection input.384fs at high level.
4	CKO	O	Clock output terminal (Buffer output signal of input XT).
5	LCRI	I	Synchronizing clock input terminal for fs.
6	DIN	I	Serial data input terminal.
7	BCKI	I	Bit clock input terminal.
8	Vss		Connect to ground.
9	/OMOD1	I	Stereo output mode at high level.
10	DG	O	Deglitching signal output (8 fs rates)
11	DOL	O	Serial data output terminal for left channel (16 bits).
12	DOR	O	Serial data output terminal for right channel (16 bits).
13	/OMOD2	I	Mode selection input for output signal of terminals DOL and DOR.16 bit DAC connection mode at high level.
14	WDCO	O	Word clock output terminal.
15	BCKO	O	Bit clock output terminal.(192 fs rates)
16	VDD		+5V power supply terminal.

NOTE:fs=44.1kHz

Q107
STA341M-L (Transistor array)

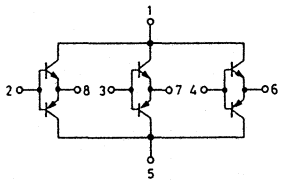


Fig. 32

Q752
M51943ASL (System reset)

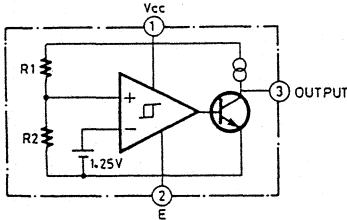


Fig. 34

Q112
LA6510 (Power operation amp.)

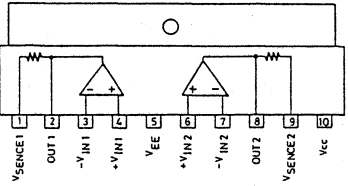


Fig. 33

Q114
74HC04P (Hex inverters)

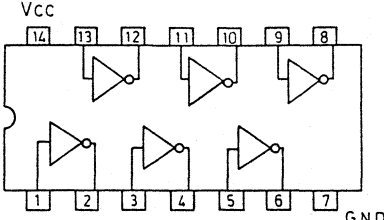


Fig. 35

Q403, Q404
M5218L (Op amp)

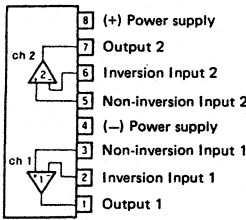


Fig. 36

Q704
GPIU501S (Remote control sensor)

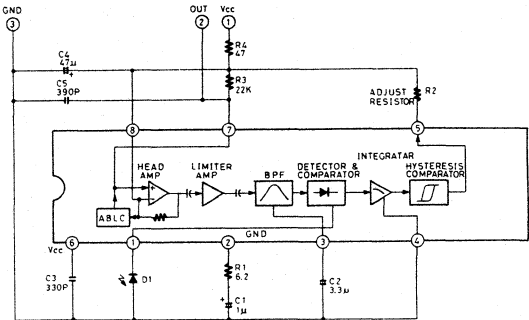


Fig. 37

MICROCOMPUTER DESCRIPTIONS

Q701 MASTER MICROCOMPUTER (M50941-149SP)

Function: Key input processing

System code processing

FL tube drive

Playback mode control (Memory, Shuffle, Repeat etc.)

Sub microcomputer control

Q751 SUB MICROCOMPUTER (MB88505HP-G-1041T-SH)

Function: Servo and mechanism system control

Sub code Q decoder

Q702 REMOCON MICROCOMPUTER (LC6527H-3722)

Function: Code convert (RI from remocon code)

M50941-186SP (MASTER MICROCOMPUTER)

Pin No.	Symbol	I/O	Description
1	Vref		Power supply reference of microcomputer.
2 ~ 5	IN7 ~ IN4	I	Key input terminals (A/D converter).
10~13	DATA 3~DATA 0	I/O	DATA bus terminals.
14	SCLK	I	Status transfer clock input from Q751.
16	MCLK	O	Command transfer clock output to Q751.
17	CMND	O	Command transfer signal output to Q751."L" active.
18	NRSC OUT	O	NRSC(RI) code output terminal.
24	NRSC IN	I	NRSC(RI) code input terminal.
26,30	GND		Ground terminals.
27	XRST	I	Reset input terminal. Reset at high level from low when power is turned on.
28	C4M	I	Reference clock input terminal. f=4.2336MHz
32	Vss		Connect to ground.
34,36	GND		Ground terminals.
35,37	+5V		Connect to +5V.
38	-Vdisp		Connect to -24V. Power supply terminal of FL tube.
39~54	a~p	O	Segment output terminals for FL tube.
55~62	1G~8G	O	Grid output terminals for FL tube.
63	AVcc		Power supply terminal for A/D converter(#2,3,4 and 5). Connect to +5V.
64	Vcc		+5V power supply terminal.

MB88505HP-G-1041T-SH (SUB MICROCOMPUTER)

Pin No.	Symbol	I/O	Description
1 ~ 4	DATA 0~DATA 3	I/O	Data bus terminals.
5	CMND	I	Command transfer signal terminal from Q701."L" active.
6	MCLK	I	Command transfer clock terminal from Q701.
7	SENS	I	Servo IC (Q104) and signal processing IC (Q109) sense information input terminal.
8	FOK	I	Focus input terminal. "H" when focus is on.
9 ~ 11	+5V	I	+5V power supply terminal.
12	IN SW	I	Loading IN switch information terminal."L" when tray is closed.
13	OUT SW	I	Loading OUT switch information terminal."L" when tray is opened.
14	ADJUST	I	E-F balance adjustment terminal. Not used.
15	CRCF	I	CRCF input terminal from Q109.
16	C4M	I	Reference clock input terminal.
18	XRST	I	Reset input terminal. Reset at high from low when power is turned on.
19	SCOR	I	Sub code sink input.
20	GND	I	Ground terminal.
21	Vss		Connect to ground.
22	SQCK	O	Sub code data read clock output.
23	SUBQ	I	Sub code data input.
25~30	ACCESS~POWER	O	Operation output terminal of servo system.
32	LSR	O	Laser diode control output terminal. Light on at low level.
33	OPEN	O	Loading motor control output. Tray opens at low level.
34	CLOSE	O	Loading motor control output. Tray closes at low level.
35	MUTE	O	Audio muting control output terminal. "H" active.
36	EMPH	O	Emphasis control output terminal. "H" active.
37	CLK	O	Serial command transfer clock output to servo system.
38	DATA	O	Serial command data output to servo system.
39	XLT	O	Serial command execution output to servo system.
40	SCLK	O	Status transfer clock output to Q701.
42	Vcc		+5V power supply terminal.

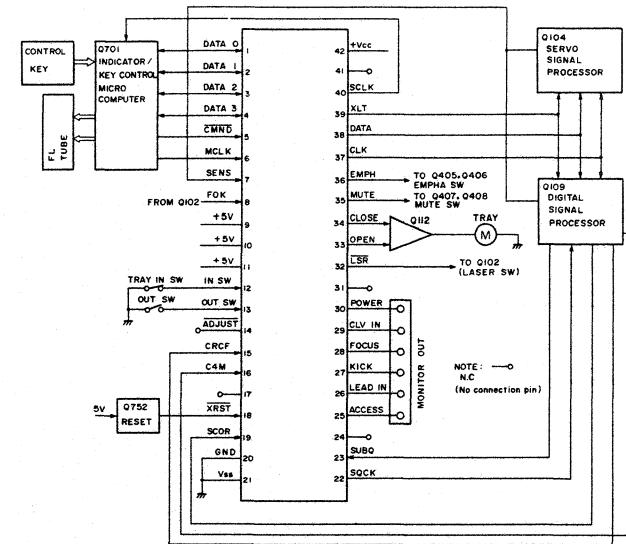


Fig. 38

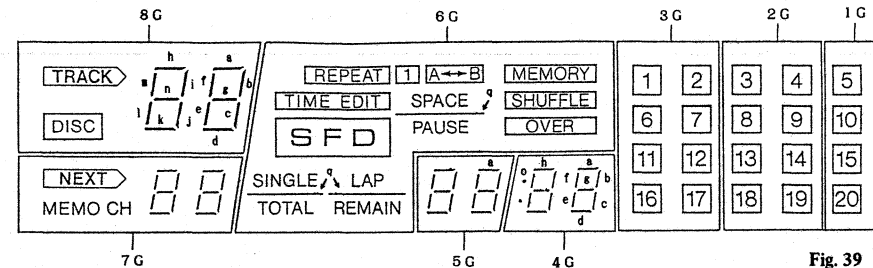
Q703
8-BT-80GK (FL tube)

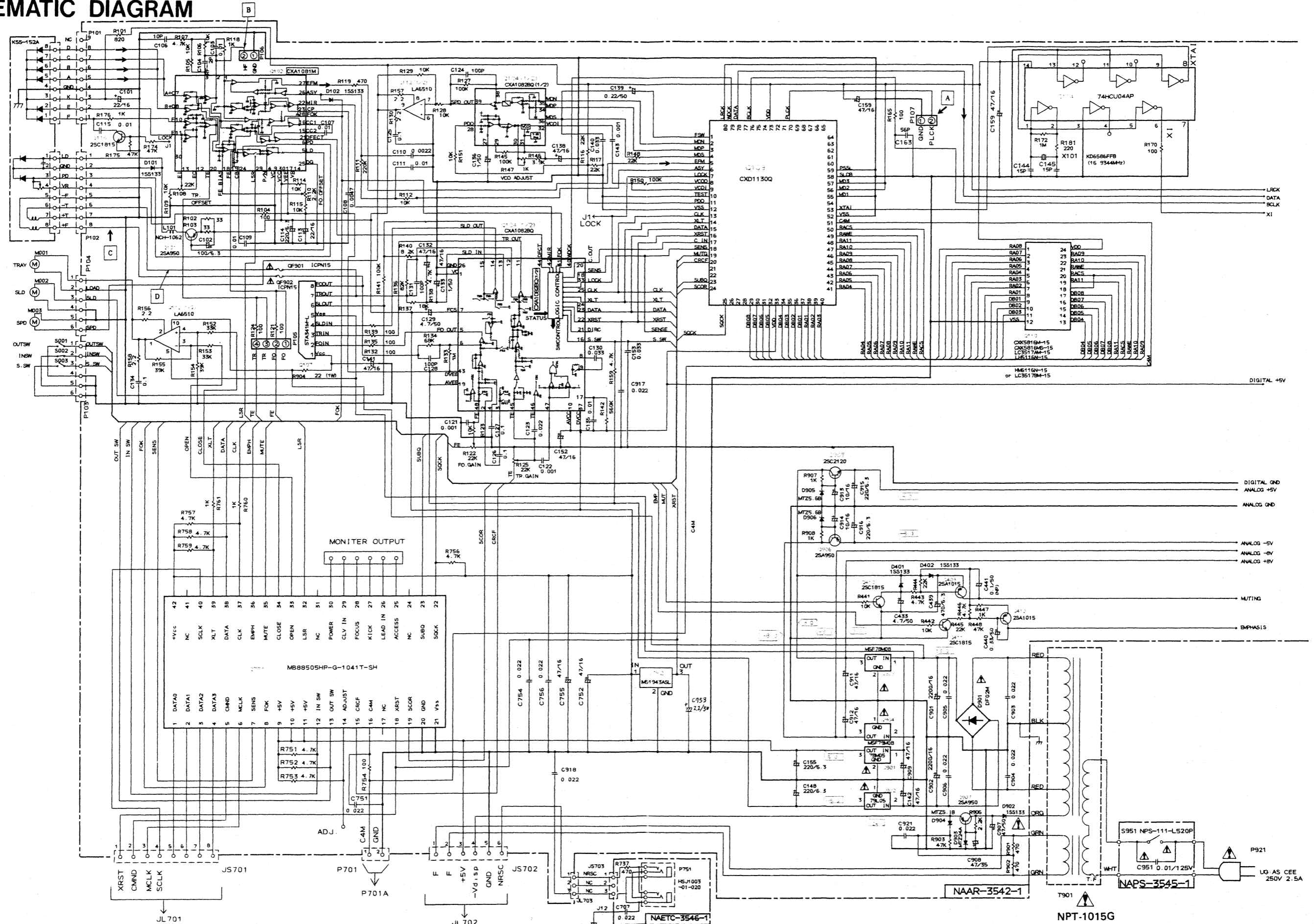
Fig. 39

ANODE CONNECTION

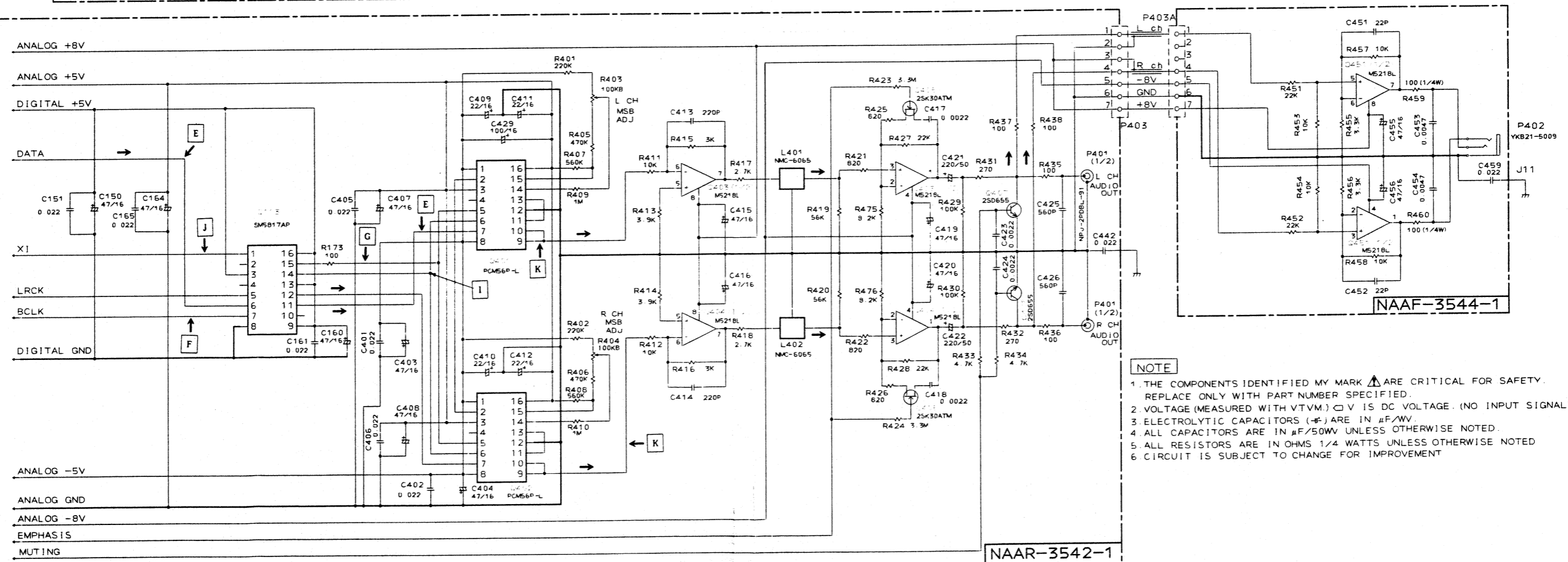
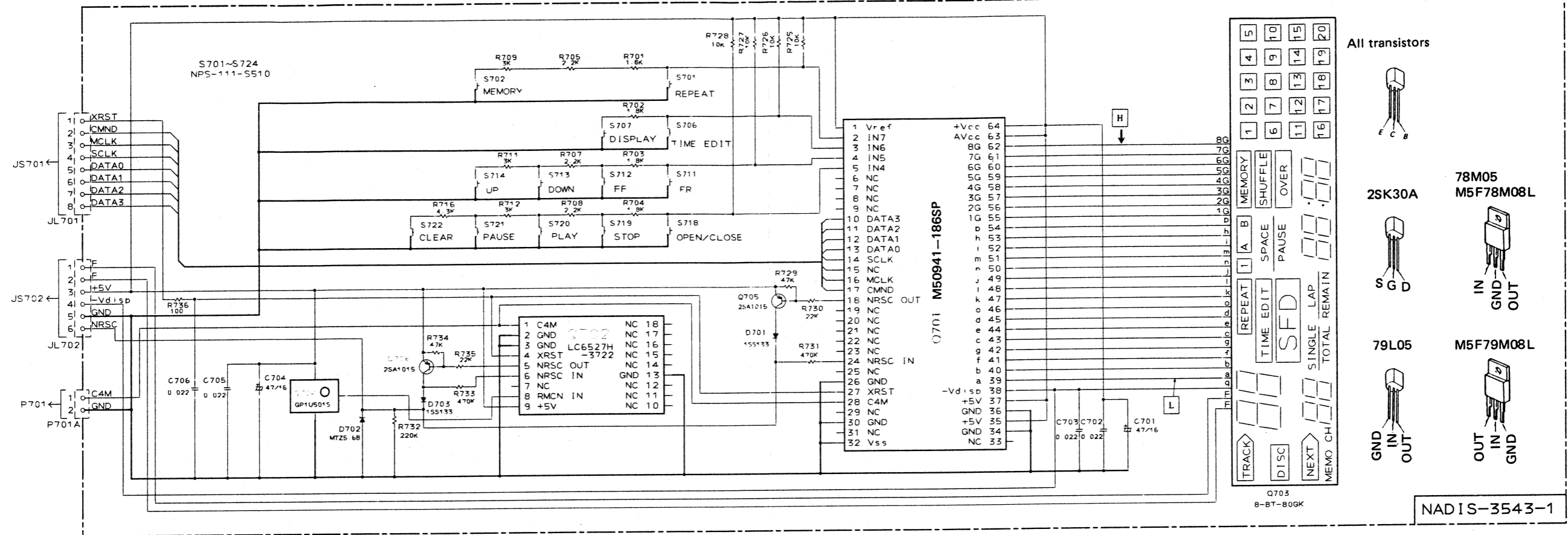
	8 G	7 G	6 G	5 G	4 G	3 G	2 G	1 G
a	a	a	REPEAT	a	a	1	3	5
b	b	b	TIME EDIT	b	b	(1)	(2)	(5)
c	c	c	SFD	c	c	6	8	10
d	d	d	(SFD)	d	d	7	9	-
e	e	e	1	e	e	(6)	(8)	(10)
f	f	f	A↔B	f	f	2	4	-
g	g	g	SPACE	g	g	(2)	(4)	-
h	h	h	PAUSE	h	h	(7)	(9)	-
i	i	i	MEMORY	i	i	11	13	15
j	j	j	SHUFFLE	j	j	(12)	(14)	-
k	k	k	OVER	k	k	(16)	(18)	(20)
l	l	l	SINGLE	l	l	16	18	20
m	m	m	TOTAL	m	m	(11)	(13)	(15)
n	n	n	LAP	n	n	12	14	-
o	o	o	REMAIN	-	-	17	19	-
p	o	o	DISC	-	-	(17)	(19)	-
q	-	-	MEMO CH	-	-	-	-	-

Fig. 40

SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM



WAVEFORM OF EACH SECTION

- Use the high impedance (more than 10Mohm) probe. (10:1)
- Play the track 2 of test disc YEDS-18.

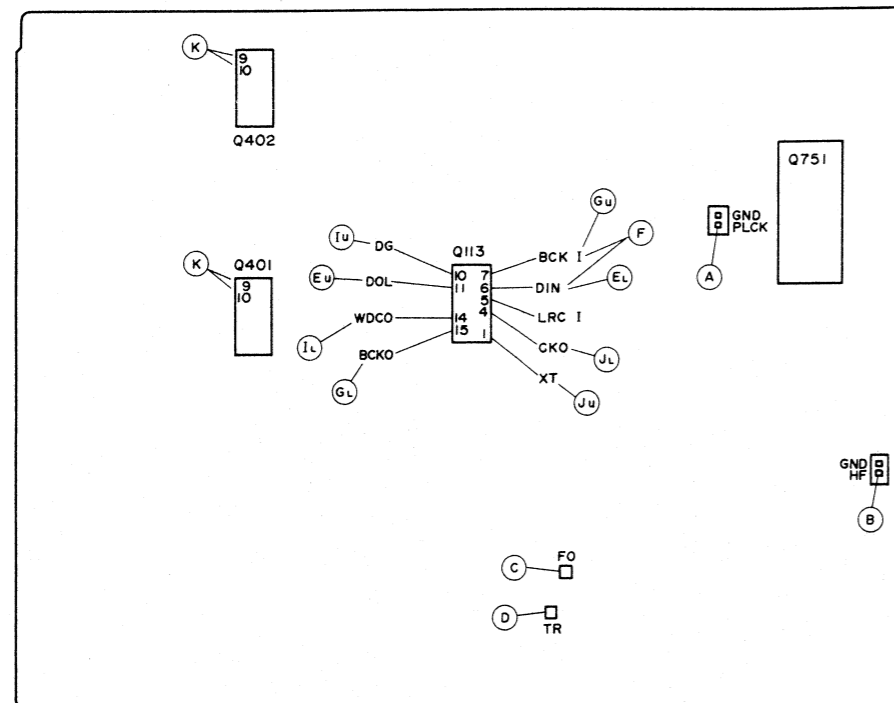
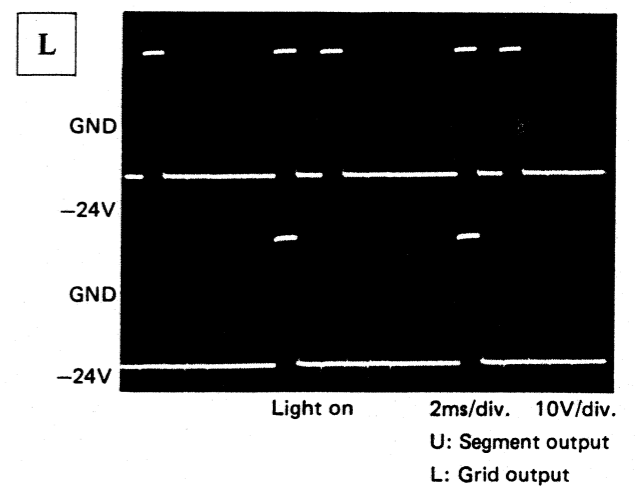
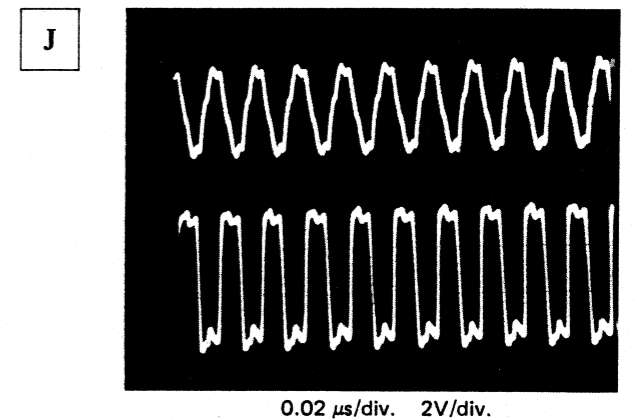
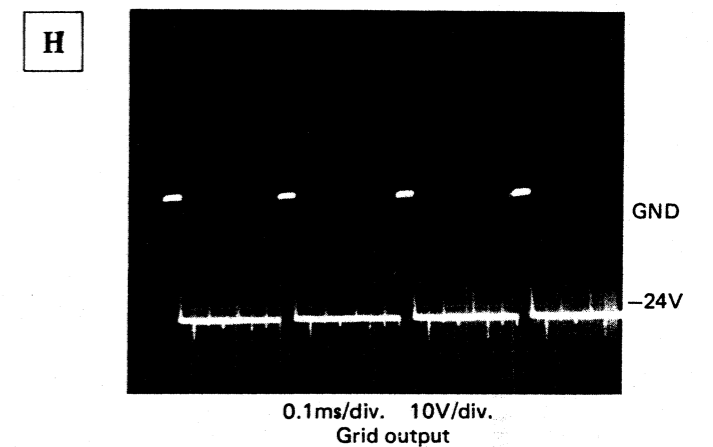
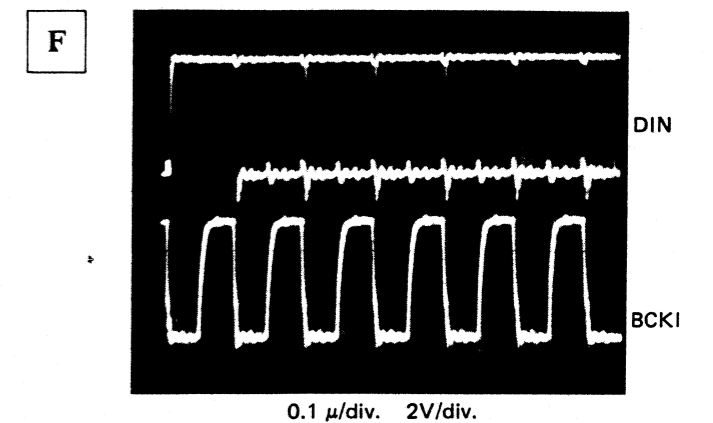
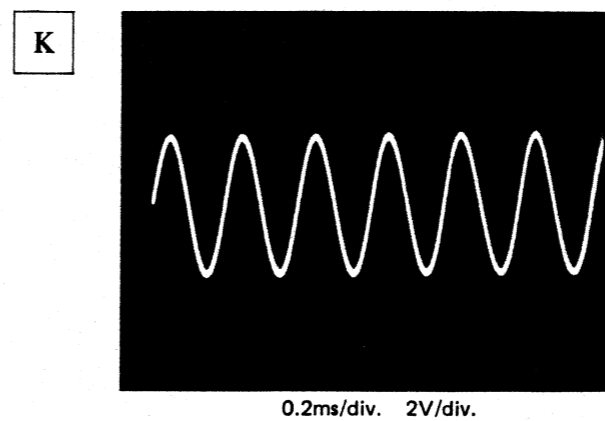
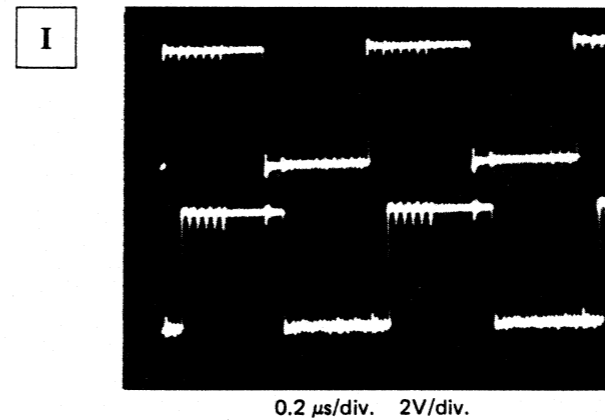
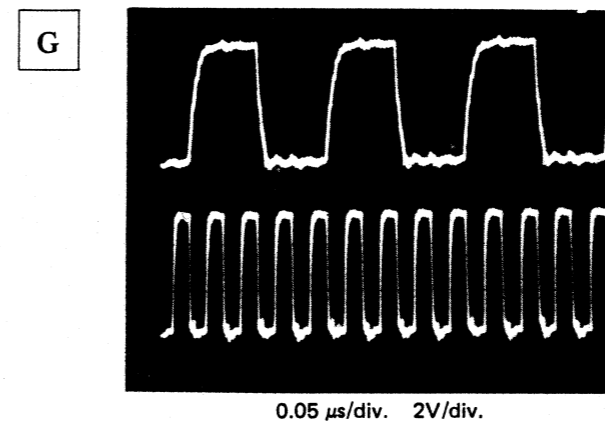
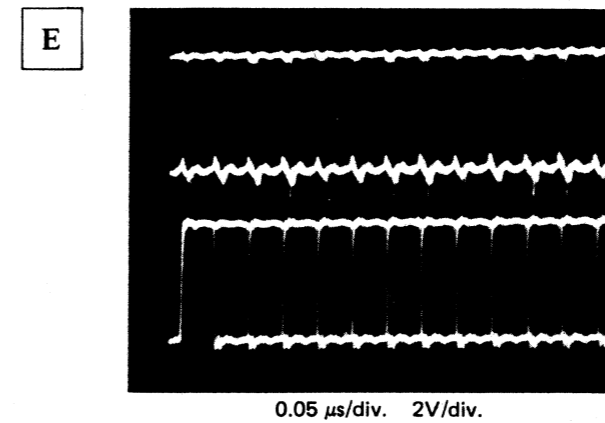
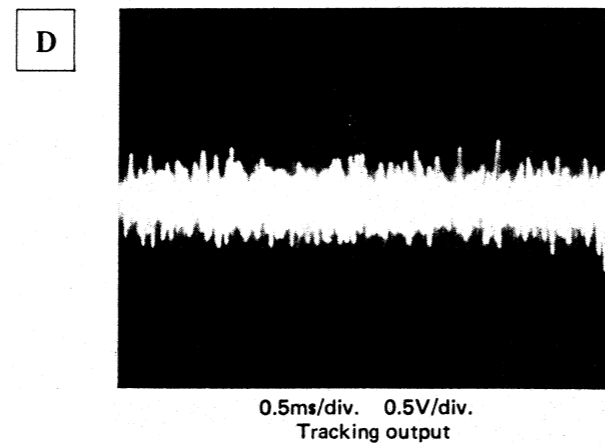
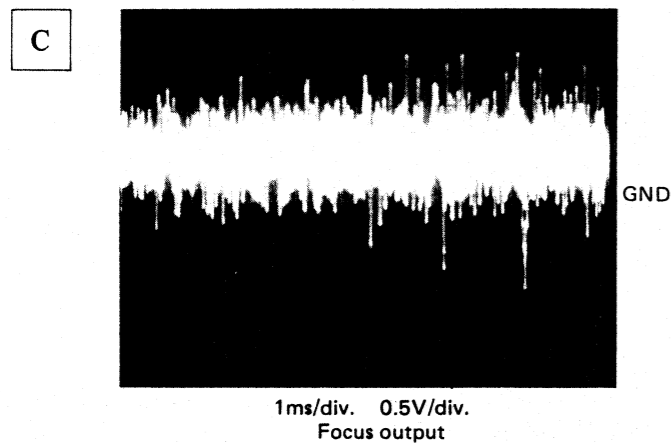
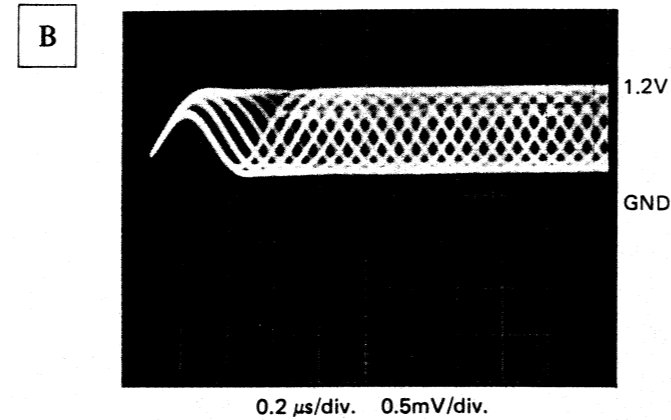
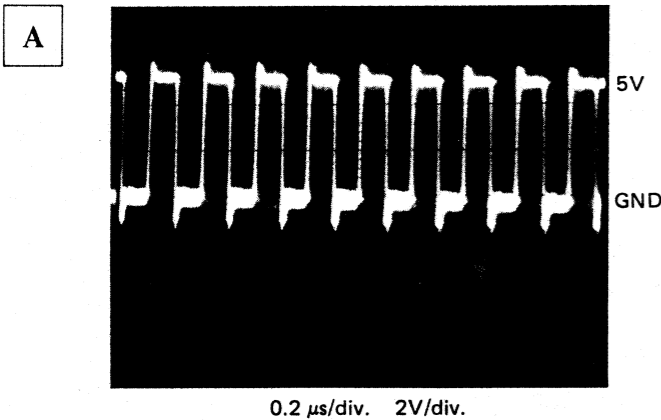


Fig. 41



PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

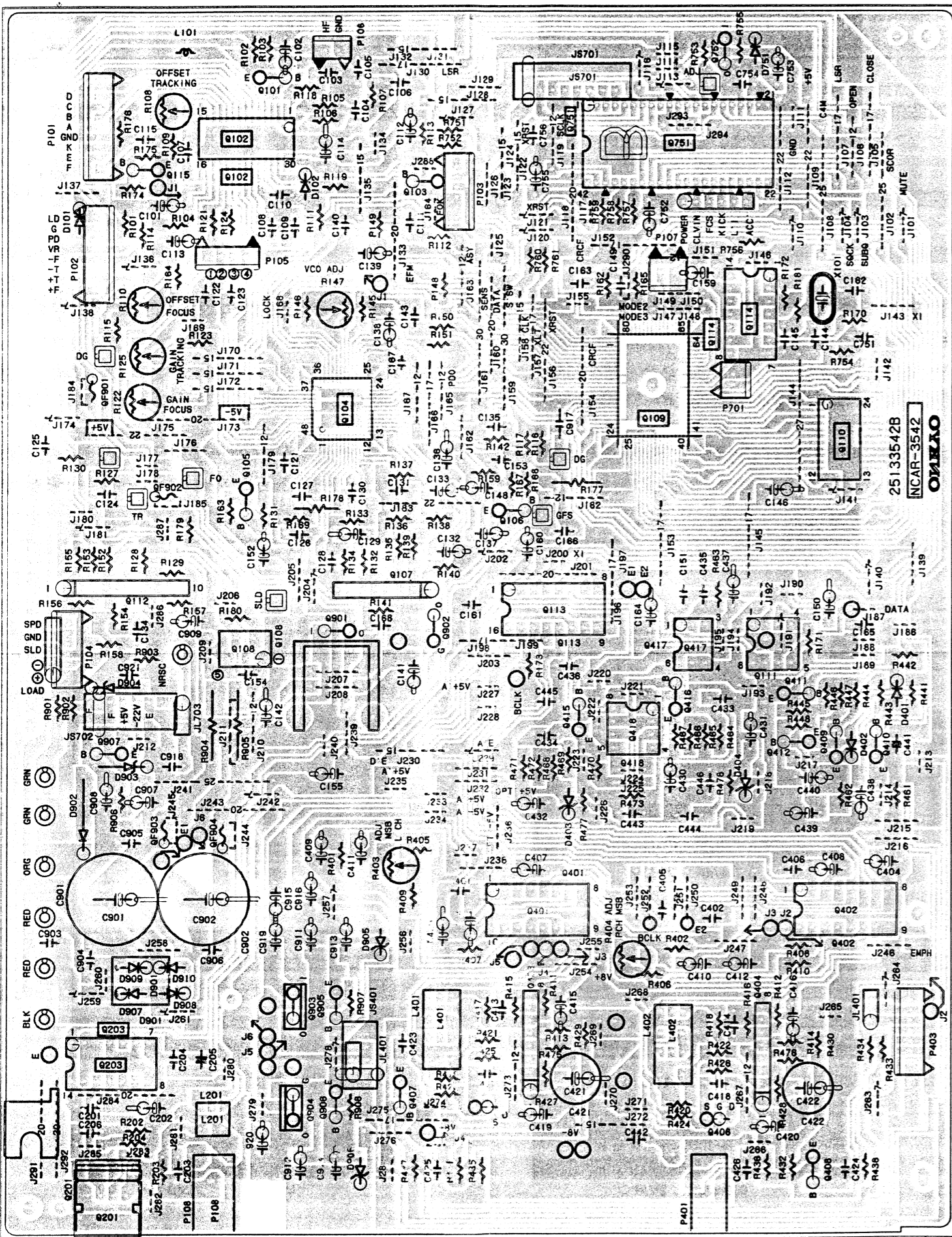


Fig. 42 MAIN CIRCUIT PC BOARD

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD(NAAR-3542-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
Q102	22240029	CXA1081M	C130	371123334	0.033μF 5%, 50V, Mylar
Q104	22240223	CXA1082BQ	C132	354744709	47μF, 16V, Elect.
Q107	22240168	STA341M-L	C133	357480109	1μF, 50V, Elect.
Q109	22240095	CXD1130Q	C134	371121044	0.1μF 5%, 50V, Mylar
Q110	222990,	CXK5816M-15,	C135	371121034	0.01μF 5%, 50V, Mylar
	22240142,	CXK5816MS-15,	C136	354780109	1μF, 50V, Elect.
	22240032,	LC3517AM-15,	C138	354744709	47μF, 16V, Elect.
	22240203,	LC5116N-15,	C139	354782299	0.22μF, 50V, Elect.
	222882 or	HM6116FP-4 or	C140	371123334	0.033μF 5%, 50V, Mylar
	22240233	LC3517BM-15	C141,C142	354744709	47μF, 16V, Elect.
Q112	22240034	LA6510	C146	354744709	47μF, 16V, Elect.
Q113	22240237	SM5817AP	C148	354722219	220μF, 6.3V, Elect.
Q114	222755	74HC04P	C150,C152	354744709	47μF, 16V, Elect.
Q401,Q402	22240096	PCM56P-L	C153	371123334	0.033μF 5%, 50V, Mylar
Q403,Q404	222652	M5218L	C155	354722219	220μF, 6.3V, Elect.
Q751	22240236	MB88505HP-G-1041T-SH	C159,C160	354744709	47μF, 16V, Elect.
Q752	22240018	M51943ASL	C164	354744709	47μF, 16V, Elect.
Q901	222780052	78M05	C403,C404	354744709	47μF, 16V, Elect.
Q902	222790053	79L05	C407,C408	354744709	47μF, 16V, Elect.
Q903	222780085MIT	M5F78M08L	C409-C412	354742209	22μF, 16V, Elect.
Q904	222790085MIT	M5F79M08L	C413,C414	373302214	220pF 5%, 125V, Plastic (PP)
		Transistors	C415,C416	354744709	47μF, 16V, Elect.
		2211503 or	C417,C418	371122224	2200pF 5%, 50V, Mylar
Q906,Q907	2211504	2SA950-O or	C419,C420	354744709	47μF, 16V, Elect.
Q115,Q410	2211254,	2SA950-Y	C421,C422	354782219	220μF, 50V, Elect.
Q411	2211255,	2SC1815-Y,	C423,C424	371122224	2200pF 5%, 50V, Mylar
	2211183 or	2SC1815-GR,	C425,C426	373305614	560pF 5%, 125V, Plastic (PP)
	2212485	2SC1740-R or	C429	354741019	100μF, 16V, Elect.
Q405,Q406	22112375	JC501-Q	C438	354780479	4.7μF, 50V, Elect.
Q407,Q408	2211705 or	2SK30ATM-GR	C439	354724719	470μF, 6.3V, Elect.
	2211706	2SD655-E or	C440	354783399	0.33μF, 50V, Elect.
Q409,Q412	2211454,	2SD655-F	C441	352981096	0.1μF, 50V, Non-polar elect.
	2211455,	2SA1015-Y,	C752,C755	354744709	47μF, 16V, Elect.
	2213074 or	2SA1015-GR,	C753	354780229	2.2μF, 50V, Elect.
Q905	2212495	2SA933-R or	C901,C902	354742229	2200μF, 16V, Elect.
	2211163 or	JA101-Q	C907	354784709	47μF, 50V, Elect.
	2211164	2SC2120-O or	C908	354764709	47μF, 35V, Elect.
		2SC2120-Y	C909	354744709	47μF, 16V, Elect.
		Diodes	C911,C912	354744709	47μF, 16V, Elect.
D101,D102	223163	1SS133	C913,C914	354741009	10μF, 16V, Elect.
D401,D402	223163	1SS133	C915,C916	354722219	220μF, 6.3V, Elect.
D901	223892	DF02M			Resistors
D902	223163	1SS133	R108	5210066	N06HR22KBD, Semi-fixed
D903	224652401 or	HZ24E-B1 or	R110	5210060	N06HR2.2KBD, Semi-fixed
	224452401	MTZ24A	R122,R125	5210066	N06HR22KBD, Semi-fixed
D904	224650512 or	HZ5.1E-B2 or	R147	5210058	N06HR1KBD, Semi-fixed
	224450512	MTZ5.1B	R403,R404	5210070	N06HR100KBD, Semi-fixed
D905,D906	224650562 or	HZ5.6E-B2 or	R904	441622204	22ohm 5%, 1W, Metal oxide film
	224450562	MTZ5.6B			Plugs
		X'tal	P101	25055153	NPLG-9P137
X101	3010112	KD6586FFB	P102	25055152	NPLG-8P136
		Coils	P103,P104	25055150	NPLG-6P134
L101	231023	NCH-1062	P105	25055045	NPLG-4P33
L401,L402	232141	NMC-6065	P106,P107	25055038	NPLG-2P29
		Capacitors	P403	25055151	NPLG-7P135
C101,C113	354742209	22μF, 16V, Elect.	P701	25055146	NPLG-2P130
C102	354721019	100μF, 6.3V, Elect.			Terminal
C103	371121034	0.01μF 5%, 50V, Mylar	P401	25045211	NPJ-2PDBL91, Output
C107,C109	371121034	0.01μF 5%, 50V, Mylar			Sockets
C108	371124724	4700pF 5%, 50V, Mylar	JS701	25050272	NSCT-8P100
C110	371122224	2200pF 5%, 50V, Mylar	JS702	25050270	NSCT-6P98
C111,C115	371121034	0.01μF 5%, 50V, Mylar			Radiator
C114	354722219	220μF, 6.3V, Elect.	27160211-1		RAD68B
C121,C122	371121024	1000pF 5%, 50V, Mylar			Screw
C123	371122234	0.022μF 5%, 50V, Mylar	82143006		3P+6FN(BC), Pan head
C125-C127	371121044	0.1μF 5%, 50V, Mylar			Fuses
C129	354780479	4.7μF, 50V, Elect.	QF901,QF902	252112	ICPN15, IC protector

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

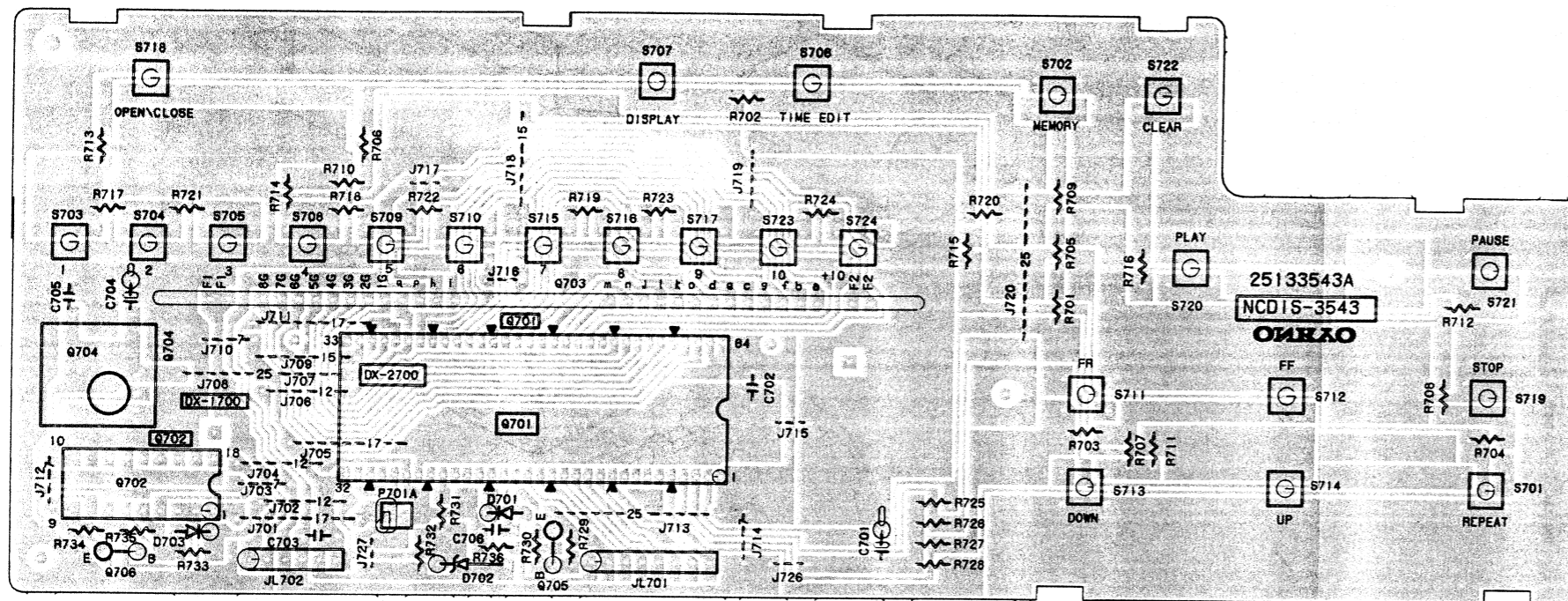


Fig. 43 DISPLAY CIRCUIT PC BOARD

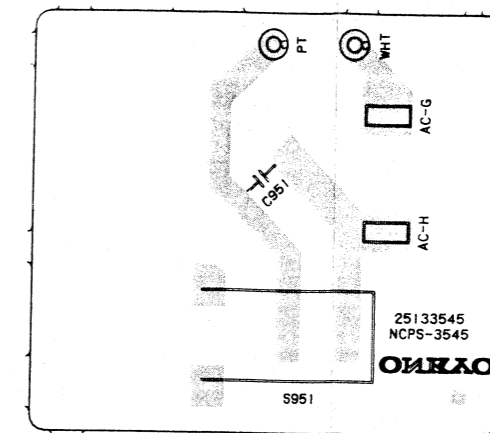


Fig. 44 POWER SUPPLY PC BOARD

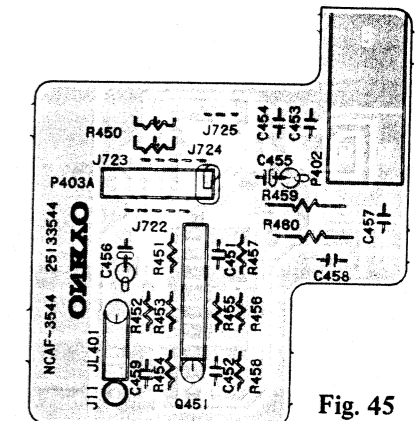


Fig. 45 HEADPHONE AMPLIFIER PC BOARD

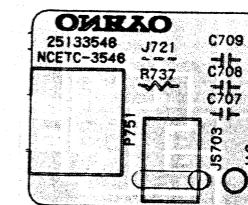


Fig. 46 SYNCRO. PC BOARD

DISPLAY CIRCUIT PC BOARD(NADIS-3543-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	22240235A	M50941-186SP
Q702	22240173	LC6527H-3722
Q704	24130001	GP1U501S
	FL tube	
Q703	212072	8-BT-80GK
	Transistors	
Q705, Q706	2211454,	2SA1015-Y,
	2211455 or	2SA1015-GR or
	2213074	2SA933-R
	Diodes	
D701, D703	223163	1SS133
D702	224650562 or	HZ5.6EB2 or
	224450562	MTZ5.6B
	Capacitors	
C701, C704	355744709	47μF, 16V, Elect.
	Switches	
S701, S702	25035548	NPS-111-S510
S706, S707	25035548	NPS-111-S510
S711-S714	25035548	NPS-111-S510
S718-S722	25035548	NPS-111-S510
	Socket	
	2000732	NSAS-4P688
	Holder	
	27190696	FL tube

HEADPHONE AMPLIFIER PC BOARD (NAAF-3544-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q451	222652	M5218L
	Capacitors	
C455, C456	354744709	47μF, 16V, Elect.
	Jack	
P402	25045255	YKB21-5009
	Socket	
P403A	2000987	NSAS-14P939

POWER SUPPLY PC BOARD(NAPS-3545-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
C951	3500065A	△ DE7150FZ103P AC400V/125V, Capacitor IS
S951	25035558	△ NPS-111-L520P, Power switch
	27300601	△ SB1925, Cover for C951

SYNCRO. TERMINAL PC BOARD(NAETC-3546-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P751	25045172	HSJ1003-01-020, Terminal
JS703	25050267	NSCT-3P95, Socket

The components identified by mark **△** are critical for safety. Replace only with part number specified.

-36-